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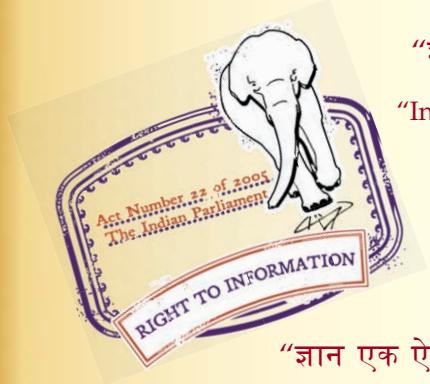
IS 8070 (1991): Screws - Slotted capstan (tommy bolts) [PGD 31: Bolts, Nuts and Fasteners Accessories]



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(Reaffirmed 2001)

खाँचेदार केपस्टन पेच (टामी काबले) – विशिष्टि

(पहला पुनरीक्षण)

Indian Standard

SCREWS — SLOTTED CAPSTAN (TOMMY BOLTS) — SPECIFICATION

(First Revision)

UDC 621·882·217

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

November 1991

Price Group 2

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Bolts Nuts and Fasteners Accessories Sectional Committee had been approved by the Light Mechanical Engineering Division Council.

This standard was originally published in 1976 and was based on DIN 404-1972 'Slotted capstan screws', issued by Deutsches Institut für Normung. In this revision contents of the standard have been revised and harmonized with the latest versions of basic standards related to fasteners.

For reasons of demand and practical usage, deviation has been made from the standardized tolerance in IS 1367 (Part 2) : 1979 for head diameter (*d*) and tolerance h12 has been applied.

Slotted capstan screws may be used both as fastening and adjusting screws. They are primarily designed for use in electrical engineering and may be tightened by means of a sliding tee bar where it is not possible to use a screwdriver. Locking wires are often attached to the cross holes for securing purposes.

In preparation of this standard, assistance has been derived from DIN 404 : 1986 'Slotted capstan screws', issued by Deutsches Institute für Normung (Germany).

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding of numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

SCREWS — SLOTTED CAPSTAN (TOMMY BOLTS) — SPECIFICATION

(First Revision)

1 SCOPE

This standard covers the requirements for slotted capstan screws (tommy bolts) in the size range M2 to M10.

2 REFERENCES

The Indian Standards listed in Annex A are necessary adjuncts to this standard.

3 SPECIFICATION AND REFERENCE STANDARDS

Dimensions		Table 1		
Preferred length size combination		Table 2		
Tolerances	Product grade	A		
	Indian Standard	IS 1367 (Part 2) : 1979		
Threads	Pitch	Coarse		
	Tolerance	6 g		
	Indian Standard	IS 4218 (Part 5) : 1979 IS 4218 (Part 6) : 1978		
Material		Steel	Stainless steel	Brass
Mechanical properties	Property Class	6·8	C4-50	Minimum tensile strength
	Indian Standard	IS 1367 (Part 3) : 1979	IS 1367 (Part 14) : 1984	300 MPa

4 DESIGNATION

4.1 The slotted capstan screws shall be designated by nomenclature, size, length and number of this standard.

4.1.1 For example, slotted capstan screw of size M6 and length 20 mm will be designated as:

Capstan Screw IS 8070 — M6 × 20

4.2 When stainless steel or brass is used for manufacture of capstan screws, the word 'stainless steel' or 'Brass' shall be added at the end of the designation.

4.2.1 For example, a slotted capstan screw of size M8, length 20 mm and made of brass will be designated as:

Capstan Screw IS 8070 — M8 × 20 — Brass

5 SAMPLING

The sampling and criteria of acceptance shall be in accordance with IS 2614 : 1969.

6 GENERAL REQUIREMENTS

6.1 In respect of permissible surface discontinuities, the slotted capstan screws shall conform to IS 1367 (Part 9) : 1979.

6.2 In respect of requirements not covered in this standard, the capstan screws shall conform to IS 1367 (Part 1) : 1980.

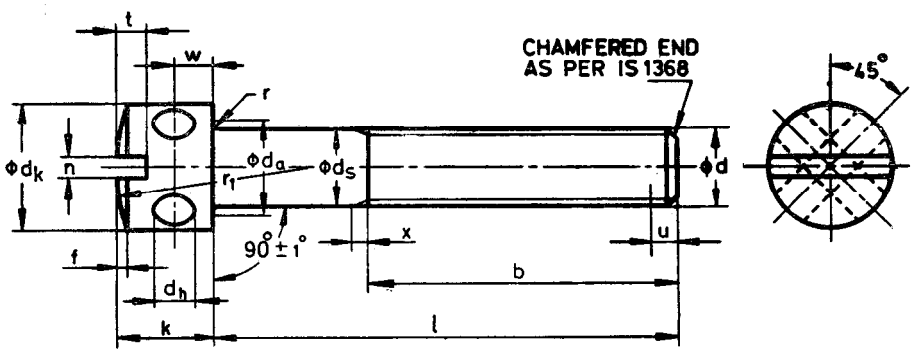
7 MARKING AND MODE OF DELIVERY

Marking of the capstan screws and the mode of delivery shall be in accordance with IS 1367 (Part 18) : 1979.

Table 1 Dimensions for Slotted Capstan Screws

(*Clause* 3)

All dimensions in millimetres.



u = 2 P *Max* incomplete thread.

x = Normal runout according to IS 1369 : 1982.

Thread Size d			M2	M2·5	M3	M4	M5	M6	M8	M10
Pitch	P		0·4	0·45	0·5	0·7	0·8	1	1·25	1·5
b	$^{+2P}_{0}$		16	18	19	22	25	28	34	40
d_a		*Max*	2·6	3·1	3·6	4·7	5·7	6·8	9·2	11·2
d_h	Nom =	*Min*	1·2	1 2	1·5	2	2·5	3	4	5
		Max	1·34	1·34	1 64	2·14	2·64	3·14	4·18	5·18
d_k	Nom =	*Max*	3·8	4·5	5·5	7	8·5	10	13	16
		Min	3·68	4·38	5·38	6·85	8·35	9·85	12·82	15·82
d_s	Nom =	*Max*	2	2·5	3	4	5	6	8	10
		Min	1·86	2·36	2·86	3·82	4·82	5·82	7·78	9·78
f		≈	0·3	0·4	0·5	0·6	0·7	0·9	1	1·3
k		Nom	3	3·5	4	5	6·5	8	10	12·5
		Max	3·3	3·88	4·38	5·38	6·95	8·45	10·45	13·05
		Min	2·7	3·12	3·62	4·62	6·05	7·55	9·55	11·95
n		Nom	0·5	0·6	0·8	1	1·2	1·6	2	2·5
		Max	0·7	0·8	1	1·2	1·51	1·91	2·31	2·81
		Min	0·56	0·66	0·86	1·06	1·26	1·66	2·06	2·56
r		*Min*	0·1	0·1	0·1	0·2	0·2	0·25	0·4	0·4
r_1		≈	6	6	8	10	16	16	20	25
t		*Max*	0·9	1	1·25	1·7	2	2·6	3·2	4·1
		Min	0·7	0·8	1	1·4	1·7	2·2	2·7	3·5
w		Nom	1·2	1·2	1·5	2	2·5	3	4	5
		Max	1·32	1·32	1·62	2·12	2·62	3·12	4·15	5·15
		Min	1·08	1·08	1·38	1·88	2·38	2·88	3·85	4·85

Table 2 Preferred Length Size Combinations for Slotted Capstan Screws

(*Clause* 3)

All dimensions in millimetres.

LENGTH l			THREAD SIZE d							
Nom	Min	Max	M2	M2·5	M3	M4	M5	M6	M8	M10
3	2.8	3.2								
4	3.8	4.2								
5	4.8	5.2								
6	5.8	6.2								
8	7.7	8.3								
10	9.7	10.3								
12	11.7	12.3								
(14)	13.7	14.3								
16	15.7	16.3								
(18)	17.7	18.3								
20	19.6	20.4								
(22)	21.6	22.4								
25	24.6	25.4								
(28)	27.6	28.4								
30	29.6	30.4								
35	34.5	35.5								
40	39.5	40.5								
45	44.5	45.5								
50	49.5	50.5								
55	54.4	55.6								
60	59.4	60.6								

NOTES

1 Preferred lengths are between the stepped bold lines.

2 Lengths shown in brackets are non-preferred and should be avoided.

3 Lengths above the dotted line are fully threaded.

4 Lengths above 60 mm shall be graded in 10 mm steps.

ANNEX A
(*Clause* 2)

LIST OF REFERRED INDIAN STANDARDS

IS No.	*Title*
1367 (Part 1) : 1980	Technical supply conditions for threaded steel fasteners: Part 1 Introduction and general information (*second revision*)
1367 (Part 2) : 1979	Technical supply conditions for threaded steel fasteners: Part 2 Product grades and tolerances (*second revision*)
1367 (Part 3) : 1979	Technical supply conditions for threaded steel fasteners: Part 3 Mechanical properties and test methods for bolts, screws and studs with full loadability (*second revision*)
1367 (Part 9) : 1979	Technical supply conditions for threaded steel fasteners: Part 9 Surface discontinuities on bolts, screws and studs (*second revision*)
1367 (Part 14) : 1984	Technical supply conditions for threaded steel fasteners: Part 14 Stainless steel threaded fasteners (*second revision*)
1367 (Part 18) : 1979	Technical supply conditions for threaded steel fasteners: Part 18 Marking and mode of delivery (*second revision*)
1368 : 1987	Dimensions for ends of parts with external ISO metric threads (*third revision*)
1369 : 1982	Dimensions for screw thread runouts and undercuts (*second revision*)
2614 : 1969	Methods for sampling of fasteners (*first revision*)
4218 (Part 5) : 1979	ISO metric screw threads: Part 5 Tolerances (*first revision*)
4218 (Part 6) : 1978	ISO metric screw threads: Part 6 Limits of sizes for commercial bolts and nuts (diameter range 1 to 52 mm) (*first revision*)

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Bureau of Indian Standards

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